

What is claimed is:

*Sub C1*

1. An RF package comprising:

2 a multilayered dielectric substrate on which

3 first and second dielectric substrates are formed, said

4 multilayered dielectric substrate having a cavity where

5 a semiconductor element is to be mounted;

6 a feed-through for connecting an inside and

7 outside of said cavity and comprised of a coplanar line

8 formed on said first dielectric substrate and an inner

9 layer line obtained by forming said second dielectric

10 substrate on said coplanar line, said coplanar line and

11 said inner layer line sharing a strip-like signal

12 conductor; and

13 metal members formed at a connection interface

14 between said coplanar line and said inner layer line on

15 two sides of said signal conductor.

*Sub B1*

2. A package according to claim 1, further

2 comprising:

3 first ground conductors formed on an upper

4 surface of said first dielectric substrate and arranged

5 on two sides of said signal conductor to be away from

6 each other at a predetermined distance;

7 a second ground conductor formed on said

8 second dielectric substrate; and  
9 a plurality of first via holes formed in said  
10 second dielectric substrate to connect said first and  
11 second ground conductors to each other at positions away  
12 from said connection interface between said coplanar  
13 line and said inner layer line.

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comp.  
3. A package according to claim 2, wherein a  
2 distance  $\lambda$  between said connection interface between  
3 said coplanar line and said inner layer line and a  
4 center of one of said first via holes which is at an end  
5 nearest to said connection interface is represented by

$$\lambda < \frac{c}{2f\sqrt{\epsilon_r}}$$

7 where  $c$ ,  $f$ , and  $\epsilon_r$  respectively indicate a speed of  
8 light, a signal frequency, and a specific dielectric  
9 constant of said dielectric substrate.

4. A package according to claim 2, wherein  
2 said first via holes are arranged on two sides  
3 of said signal conductor at a predetermined pitch, and  
4 a pitch  $\lambda_{p2}$  of said first via holes in a  
5 signal propagating direction is represented by

$$\lambda_{p2} < \frac{c}{2f\sqrt{\epsilon_r}}$$

7 where  $c$ ,  $f$ , and  $\epsilon_r$  respectively indicate a speed of

8 light, a signal frequency, and a specific dielectric  
9 constant of said dielectric substrate.

5. A package according to claim 4, wherein a  
2 pitch  $w$  of said first via hole in a direction  
3 perpendicular to the signal propagating direction is  
4 indicated by

$$w < \frac{c}{2f\sqrt{\epsilon_r}}$$

6. A package according to claim 4, further  
2 comprising:

3 a third ground conductor formed on a lower  
4 surface of said first dielectric substrate; and  
5 second via holes formed in said first  
6 dielectric substrate to connect said first and third  
7 ground conductors to each other, said second via holes  
8 being arranged on two sides of said signal conductor at  
9 a predetermined pitch.

7. A package according to claim 6, wherein a  
2 pitch  $\lambda_{p1}$  of said second via holes in the signal  
3 propagating direction is represented by

4

$$\lambda_{p1} < \frac{c}{2f \sqrt{\frac{\epsilon_r + 1}{2}}}$$

8. A package according to claim 2, wherein said  
2 metal members have ends on a signal conductor side that  
3 are aligned with ends of said first via holes on the  
4 signal conductor side.

9. A package according to claim 2, wherein said  
2 metal members connect said first and second ground  
3 conductors to each other at said connection interface  
4 between said coplanar line and said inner layer line.

10. A package according to claim 1, wherein said  
2 metal members are metal posts.

11. A package according to claim 1, wherein said  
2 metal members are semi-cylindrical metal electrodes.

12. A package according to claim 1, wherein said metal members are metal plates.

13. A package according to claim 1, wherein said multilayered dielectric substrate is (formed) of co-fired ceramics. *comprised*

[illegible]